

Date: Wednesday, 3/21/2007 3:48:35 PM
 User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : WEARPAD
Job Number : 31419	
Estimate Number : 12782	
P.O. Number : <i>N/A</i>	Part Number : D35643
This Issue : 3/21/2007 S.O. No. : <i>N/A</i>	Drawing Number : D3564 REV A
Prsht Rev. : NC	Project Number : N/A
First Issue : <i>N/A</i> Type : SMALL /MED FAB	Drawing Revision : A
Previous Run : 31134	Material : <i>N/A</i>
Written By : _____	Due Date : 3/30/2007 Qty: 10 Um: Each
Checked & Approved By : <i>07.03.22</i>	
Comment : Est Rev:A New Issue 07-03-08 ec	

Additional Product :

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	M304S16GA	304/316 .063 Sheet
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Comment: Qty.: 0.9177 sf(s)/Unit Total : 9.1770 sf(s)

M304S16GA Stainless steel sheet 0.063" thick

Batch: ~~M1900~~ M19052 (9) M101873 (1)

SAN 07/02/25

(1)

2.0	WATER JET	FLOW WATER JET
-----	-----------	----------------



Comment: FLOW WATER JET

1-Cut as per Dwg D3564 ***** (D3564-1F) *****

Dwg Rev: *A*Prog Rev: *A*

SAN

07/03/25

10

2-Deburr if necessary

3.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE
-----	-----	--



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

SAN

03/03/25

10

4.0	QC8	SECOND CHECK
-----	-----	--------------



Comment: SECOND CHECK

SAN 07/03/25

(10)

5.0	BRAKE NC	NC BRAKE
-----	----------	----------



Comment: NC BRAKE

Deburr if necessary

Form on Brake as per Dwg D3564 using Jigs DT and DT

mf

07-03-30

(10)

Form Joggle as per Dwg D3564 on brake using Jig DT8157

SD

07/04/02

10

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 3/21/2007 3:48:35 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: WEARPAD

Job Number: 31419

Part Number: D35643

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC5

INSPECT WORK TO CURRENT STEP



07-04-02



Comment: INSPECT WORK TO CURRENT STEP

Ensure joggle as per dwg D3420 D3564

7.0

LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

Qty Description Batch

A/R 2059B Hardcoat

M102755

Weld hardcoat as per Dwg D3427 D3564

STOP (SEE P. #104) BEFORE CONTINUING 07-04-13
OK TO CONTINUE # 02.04.15
TURN OVER

8.0

QC9

VISUAL WELDING INSPECTION



Comment: VISUAL WELDING INSPECTION

07/04/23 (10)

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

07/04/23 (10)

10.0

POWDER COATING

POWDER COATING



M101601



Comment: POWDER COATING

Powder Coat Grey Sandtex (Ref: 4.3.5.6) as per QSI 005 4.3

07-04-26 (10)

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

M.R. 07/04/30

(10X)

12.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: FP18

07-04-30

04-04-30

(10)

13.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

07/05/01

Job Completion



u 07/05/01

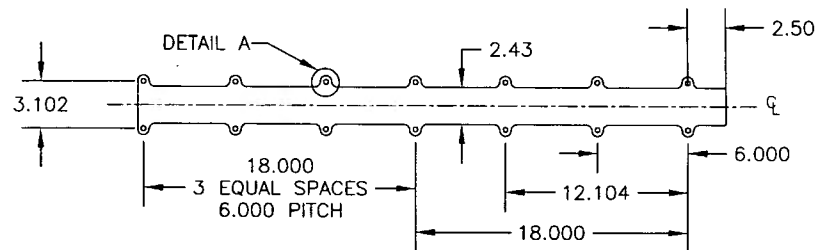
Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

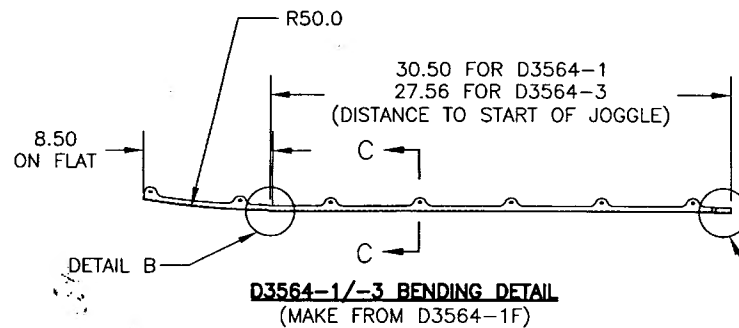
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: ☒ Date: 07/05/01
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
07.04.17	7	TAB WILL NOT FIT SKID TUBE	RL per 07.04.17 QSI 042	OPEN TABS BY 0.060" SEE ATTACHED	FF 07/04/18	07/04/18		2 07.04.17

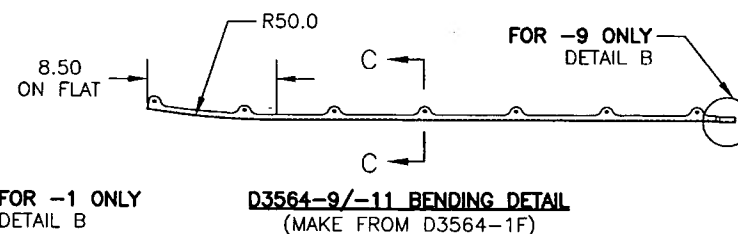
NOTE: Date & initial all entries



D3564-1F FLAT PATTERN



D3564-1/-3 BENDING DETAIL
(MAKE FROM D3564-1F)



D3564-9/-11 BENDING DETAIL
(MAKE FROM D3564-1F)

2059B HARDCOAT WELD
4.0 LONG
0.063 TO 0.125 HIGH
(TYP. 11 PLS.)
WELD AFTER BENDING AS
ILLUSTRATED PER DT8308



D3564-1/-3/-9/-11 WELDING DETAIL

NO. 31419
WORK ORDER
WITHOUT NOTICE
UNCONTROLLED COPY
ENGINEERING
RETURN TO
SHOP COPY

RELEASED
07.07.28

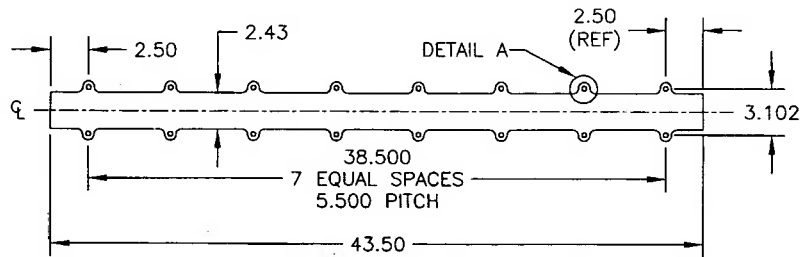
D3564-1/-3/-5/-7/-9/-11/-13 WEARPLATE NOTES

- 1) MATERIAL: AISI 304/316 SS SHEET, 16 GAUGE (0.063 THICK)
(REF DART MATERIAL SPEC M304S16GA)
- 2) FINISH: POWDER COAT GREY SANDTEX (REF 4.3.5.6) PER DART QSI 005 4.3
- 3) WELD PER DART QSI 004
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 7) PART IS SYMMETRICAL ABOUT CENTERLINE

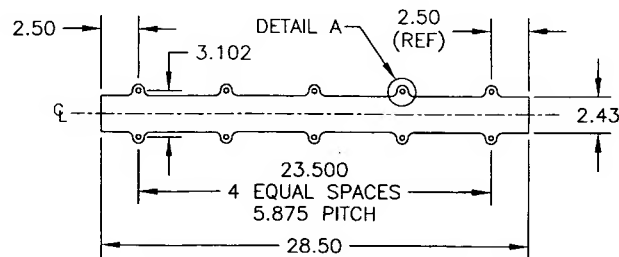
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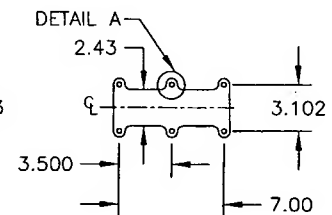
A	06.12.18	NEW ISSUE
DESIGN PH	DRAWN BY PH	DART DART AEROSPACE LTD. HARRISBURG, ONTARIO, CANADA
CHECKED PH	APPROVED PH	DRAWING NO. D3564
DATE 06.12.18	TITLE WEARSHOE	REV. A SHEET 1 OF 2 SCALE 1:8



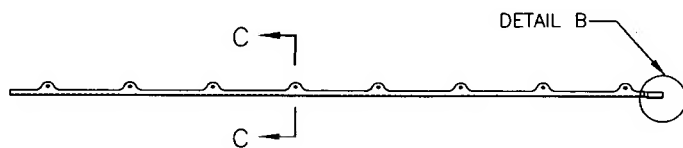
D3564-5F FLAT PATTERN



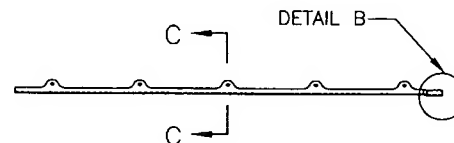
D3564-7F FLAT PATTERN



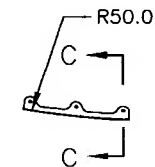
D3564-13F FLAT PATTERN



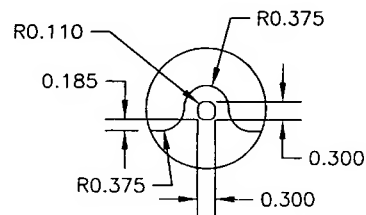
D3564-5 BENDING DETAIL
(MAKE D3564-5 FROM D3564-5F)



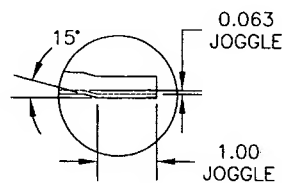
D3564-7 BENDING DETAIL
(MAKE D3564-7 FROM D3564-7F)



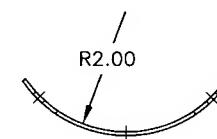
D3564-13 BENDING DETAIL
(MAKE D3564-13 FROM D3564-13F)



DETAIL A
SCALE 1:2



DETAIL B
SCALE 1:2



SECTION C-C
SCALE 1:2

RELEASED
07.02.28

31419
RD
TO ATTEND
NOTICE
UNCONTROLLED
ENGINEERING
TURN TO
SHOP

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DESIGN PH	DRAWN BY PH	DART	DART AEROSPACE LTD. HAMPSHIRE, ENGLAND, CANADA
CHECKED #	APPROVED #	DRAWING NO. D3564	REV. A SHEET 2 OF 2
DATE 06.12.18		TITLE WEARSHOE	SCALE 1:8

DART AEROSPACE LTD		Work Order: 31419
Description: Wear Pad		Part Number: D35643
Inspection Dwg: D35643 Rev: A		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☒ Prototype

Inspection Sheet Drawing Dimension		Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
A	12.104	+/- 0.010	12.100	✓		M-T Vern	
B	18.000	+/- 0.010	18.000	✓		MT	
C	6.000	+/- 0.010	6.003	✓		Vern	
D	6.000 (pitch)	+/- 0.010	5.998	✓		Vern	
E	3.102	+/- 0.010	3.098	✓		Vern	
F	2.50	+/- 0.030	2.51	✓		Vern	
G	2.43	+/- 0.030	2.43	✓		Vern	
H	0.300	+/- 0.010	0.302	✓		Vern	
I	0.300	+/- 0.010	0.306	✓		Vern	
J	0.063	+/- 0.010	0.060	✓		Vern	
K							
L							
M							
N							
O							
P							
Q							
R							
S							
T							
U							
V							
W							
X							
Y							

Measured by: SAN	Audited by: [Signature]	Prototype Approval:	N/A
Date: 07/03/25	Date: 07/03/25	Date:	N/A
Rev	Date	Change	Revised by Approved
		New Issue	KJ/RF

L Lacelle

From: Peter Hum [phum@dartaero.com]
Sent: April 13, 2007 9:11 AM
To: 'Chris Provencal'; 'Jason Murdoch'; 'Bill Beckett (Bill Beckett)'; cbell@dartaero.com; 'Dale Trepanier'; 'Dan Stow (Dan Stow)'; 'Eric Charbonneau'; 'Jean Luc Menard'; 'Kim Johnston (Kim Johnston)'; 'Leanne Elsliger'; 'Linda Lacelle (Linda Lacelle)'; 'Marc Bellavance'; 'Serge Shahbazian'; 'Susanne Sheldon (Susanne Sheldon)'
Subject: UNDER REVIEW D3535, D3537, D3564 WEARPLATES/WEARPADS

Drawings D3535, D3537, and D3564 are UNDER REVIEW. All production of the wearplates/wearpads called up on the drawings should be STOPPED.

Engineering has discovered a problem with the tabs not being wide enough when the gasket is installed underneath.

I will be providing Eric and JLM a small set of revised wearplates to perform a fit and function before they are released.

Items in stock can be re-worked to fit in order to meet demand.

Once the revised wearplates are okay for assembly, I will release an updated drawing.

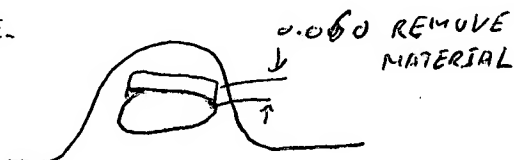
-Peter

	sth	on w/c
D3535	67	18 31747
D3537	D3537-1	10 31725
	-1	10 31417
	-3	10 31419
D3564	-13	
	-5	
	12	31726
D3537-3		

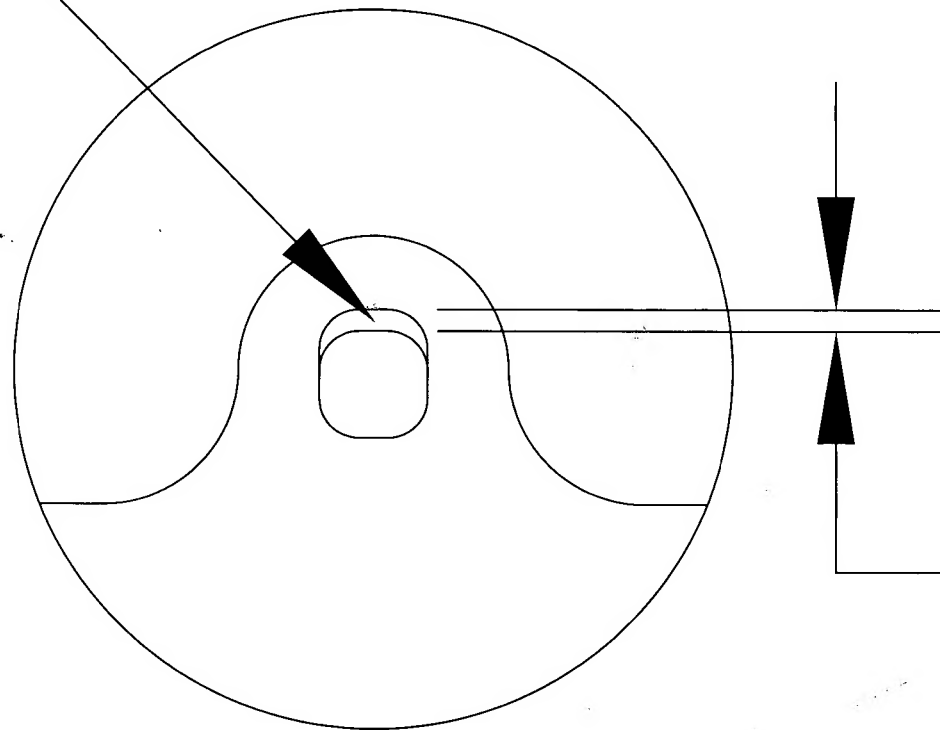
FOR D412-742-011-013

- OPEN TABS 0.060" OUTBOARD TO ALLOW INSTALLATION

S.E.



REMOVE
MATERIAL



0.060

Peter Hum

From: David Shepherd [dshepherd@dartaero.com]
Sent: April 12, 2007 4:55 PM
To: 'Peter Hum'
Cc: 'Chris Provencal'; 'Jason Murdoch'; 'L Lacelle'; 'S Shahbazian'; 'Bill Beckett'; 'Jean-Luc Menard'; 'Eric Charbonneau'
Subject: RE: stainless steel wearplate with gasket tab widening

This is an acceptable deviation to me.

However, the parts have to be cleaned up considerably from what I saw in the pictures (deburred and paint touched up).

It is my understanding that these tubes are going to a high profile customer (Air Log).

It can't be done half-assed or look like it was made to fit, in my opinion.

I can't understand why we are just finding out now that the flat pattern is 0.100" to 0.120" too narrow the day before we want to ship the parts. It seems to me this could have been tried with one small prototype piece on a couple sets of holes before we programmed and cut multiple parts on the waterjet. When I sign the drawings, I am assuming all of this stuff has been worked out. I would guess that the programmers are making the same assumption.

We have done a lot of conversions to stainless steel wearplates on other STC's (350, 412 float, 135). Have we done fitups for all of these parts to ensure that they will fit properly with the gasket?

Thanks,
David

From: Peter Hum [mailto:phum@dartaero.com]
Sent: Thursday, April 12, 2007 2:30 PM
To: 'David Shepherd'
Cc: 'Chris Provencal'; 'Jason Murdoch'; 'L Lacelle'
Subject: stainless steel wearplate with gasket tab widening

David,

+ 0412-742 24 02.04.17

We are trying to ship a 206L/407 float skidtube with stainless steel wearplates and the rubber gasket. Upon assembly we have found that the extra thickness the gasket gives, causes a difficult fit for the wearplate.

Jason opened the holes on the tab and the bolts not fit properly, to join the wearplates to the skidtube (see the attached pictures). We would have to open up all the wearplate tabs.

Is this an acceptable deviation for this shipment?

For future shipments the flat pattern will need to be updated.

Thanks
Peter

17/04/2007